

CLAIMS

What is claimed is:

5 sub C1 1. A method for treatment and prevention of dental caries in a mammal comprising oral administration of a monoclonal antibody that specifically binds to a cariogenic organism, and which elicits a humoral immune response from the mammal, wherein the monoclonal antibody is derived from a species other than the mammal to be treated.

10 2. The method for treatment and prevention of dental caries of claim 1 wherein the monoclonal antibody is produced by the steps of:

- 15 a) inoculating a mammalian host with at least one cariogenic organism;
- b) identifying hybridomas from the mammalian host that secrete antibodies specific to surface antigens of at least one cariogenic organism; and
- 20 c) preparing a chimeric monoclonal antibody comprising complementarity-determining regions from the monoclonal antibody of step b) above and a constant domain from the mammal to be treated

25 3. The method for treatment and prevention of dental caries of claim 2 wherein the step of preparing further comprises synthesis of a nucleic acid construct comprising:

- a) a nucleic acid sequence that codes on expression for a (complementarity determining region of the monoclonal antibody secreted by the hybridomas derived from the mammalian host of claim 2 above; and
- 30 b) a nucleic acid sequence that codes on expression for a constant region of an antibody selected from the group of class IgG and class IgM of the mammal to be treated.

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4. The method for treatment and prevention of dental caries of claim 3 wherein the chimeric monoclonal antibody is expressed by a eukaryotic host that has been transformed with the nucleic acid construct of claim 3 above.

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5. The method for treatment and prevention of dental caries in a mammal of claim 4, wherein the monoclonal antibody is administered by oral ingestion of tissue from a eukaryotic host transformed with the nucleic acid construct of claim 4 above.

6. The method for treatment and prevention of dental caries of claim 1 wherein the mammal to be treated is man, and the other species is mouse.

7. A method for treatment and prevention of dental caries in a mammal comprising administration of a monoclonal antibody that specifically binds to a cariogenic organism, and which elicits a humoral immune response from the mammal.

8. The method for treatment and prevention of dental caries of claim 7 wherein the monoclonal antibody is produced by the steps of:

- a) inoculating a mammalian host with at least one cariogenic organism;
- b) identifying hybridomas from the mammalian host that secrete antibodies specific to surface antigens of at least one cariogenic organism; and
- c) preparing a chimeric monoclonal antibody comprising complementarity-determining regions from the monoclonal antibody of step b) above and a constant domain from a mammal to be treated.

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9. The method for treatment and prevention of dental caries of claim 8 wherein the step of preparing further comprises preparation of at least one nucleic acid construct that includes:

- a) a nucleic acid sequence that codes on expression for a complementarity determining region of the monoclonal antibody secreted by the hybridomas derived from the mammalian host of claim 2 above; and
- b) a nucleic acid sequence that codes on expression for a constant region of an antibody selected from the group of class IgG and class IgM of the mammal to be treated.

10. The method for treatment and prevention of dental caries of claim 9 wherein the chimeric monoclonal antibody is expressed by a eukaryotic host that has been transformed with the nucleic acid construct of claim 9 above.

11. The method for treatment and prevention of dental caries in a mammal of claim 9, wherein the monoclonal antibody is administered by oral ingestion of tissue from a eukaryotic host that has been transformed with the nucleic acid construct of claim 9 above.

12. The method for treatment and prevention of dental caries of claim 8, wherein the mammalian host is a mouse, and the mammal to be treated is man.

13. The method for treatment and prevention of dental caries of claim 5 wherein the ~~eukaryote~~ is a plant.

14. The method for treatment and prevention of dental caries of claim 5 wherein the ~~eukaryote~~ is a plant of the species *Brassica*.

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a 15. The method for treatment and prevention of dental caries of claim 11 wherein the ~~eukaryote~~ <sup>eukaryote</sup> is a plant.

a 5 16. The method for treatment and prevention of dental caries of claim 11 where the ~~eukaryote~~ <sup>eukaryote</sup> is a plant of the species *Brassica*.

17. The method for treatment and prevention of dental caries of claim 8, wherein the mammal to be treated is a dog or a cat.

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